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## **Taxonomic notes on the *Parnassius simonius* complex (Lepidoptera, Papilionidae) from Middle Asia (Alai and Transalai mountains)**

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**Abstract** Four subspecies of *Parnassius simonius* Staudinger, 1889 are reviewed.

**Key words** Papilionidae, *Parnassius*, *Parnassius simonius*, Middle Asia (Alai and Transalai mountains), taxonomy.

*Parnassius simonius* Staudinger, 1889 and its related races were formerly placed as a subspecies of *P. simo* Gray, [1853], but they are newly classified as an independent status by Kreuzberg (1985). Up to the present, four races of *P. simonius* Staudinger, 1889 from Alai and Transalai mountains have been known as follows:

### *Ssp. simonius*

*Parnassius simo* var. *simonius* Staudinger, 1889, *Stettin. ent. Ztg* **50**: 16.

TL. Sud-Fergana, Transalai.

*Parnassius simonides* Austaut, 1912, *Int. ent. Z.* **5**: 360, fig. 4.

TL. Nord-Ladak'. (Agreement between *simonides* and *simonius* which was found by Kreuzberg is not taken into consideration by me.).

Range. Kirghizia: West Transalai mountains.

### *Ssp. grayi*

*Parnassius grayi* Avinoff, 1916, *Trans. ent. Soc. Lond.* **63**: 358, pl. 54, fig. 6.

TL. Jengisbai (Tengisbai).

Range. Kirghizia: West Alai mountains, Tengisbai pass.

### *Ssp. nigrificatus*

*Parnassius simo nigrificatus* Kreuzberg, 1986, *Vest. zool.* **2**: 86.

TL. 5 km W. of Kysyl-Art Pass, Transalaisky mountains, Tadzhikistan.

Range. Tadzhikistan.

### *Ssp. taldicus*

*Parnassius simonius taldicus* Gundorov, 1991, *Lambillionea* **4**: 379.

TL. Taldyk Pass, Alaisky mountains.

*Parnassius simonius shuvalorum* Kreuzberg & Pljustsh, 1992, *Vest. zool.* **2**: 78–80.

TL. Taldyk pass, 3,900 m, Alai Mts, Kirghizia.

Range. Taldyk pass, East Alai mountains, Kirghizia.

In 1990–1992, I travelled three times to Tadzhikistan and Kirghizia and succeeded in finding

many *Parnassius* species particularly *P. simonius* on the passes of Taldyk, Tengisbai and Kysyl-Art. Soon after extensive material of the same species was collected by my cooperator in Aram Kungei ravine, West Transalai and Dugoba, west Alai. These materials are readily distinguishable from each other. Such as: 38 ♂ 24 ♀, West Transalaisky mountains, Aram Kungei ravine. 57 ♂ 29 ♀, West Alaisky mountains, Tengisbai pass. 9 ♂ 7 ♀, East Transalaisky mountains, 5 km west of Kysyl-Art pass. 110 ♂ 87 ♀, East Alaisky mountains, Taldyk pass. 22 ♂ 16 ♀, West Alaisky mountains, Dugoba.

The above-mentioned material shows the following taxonomic characteristics.

- 1) Specimens from Tengisbai pass agree well with the specimens from Aram Kungei ravine. Both are the same taxon in the subspecies level.
- 2) I can find very much agreement between the specimens from Dugoba and Avinoff's description (original figure of *grayi*).

Avinoff (1916) states "This race (*grayi*) inhabits the north-western slopes of the Alai mountains near Jengisbai [Tengisbai pass]". But my work shows that ssp. *grayi* lives at 70 km west of Tengisbai pass, and at the pass lives another race of *simonius* (*simonius*).

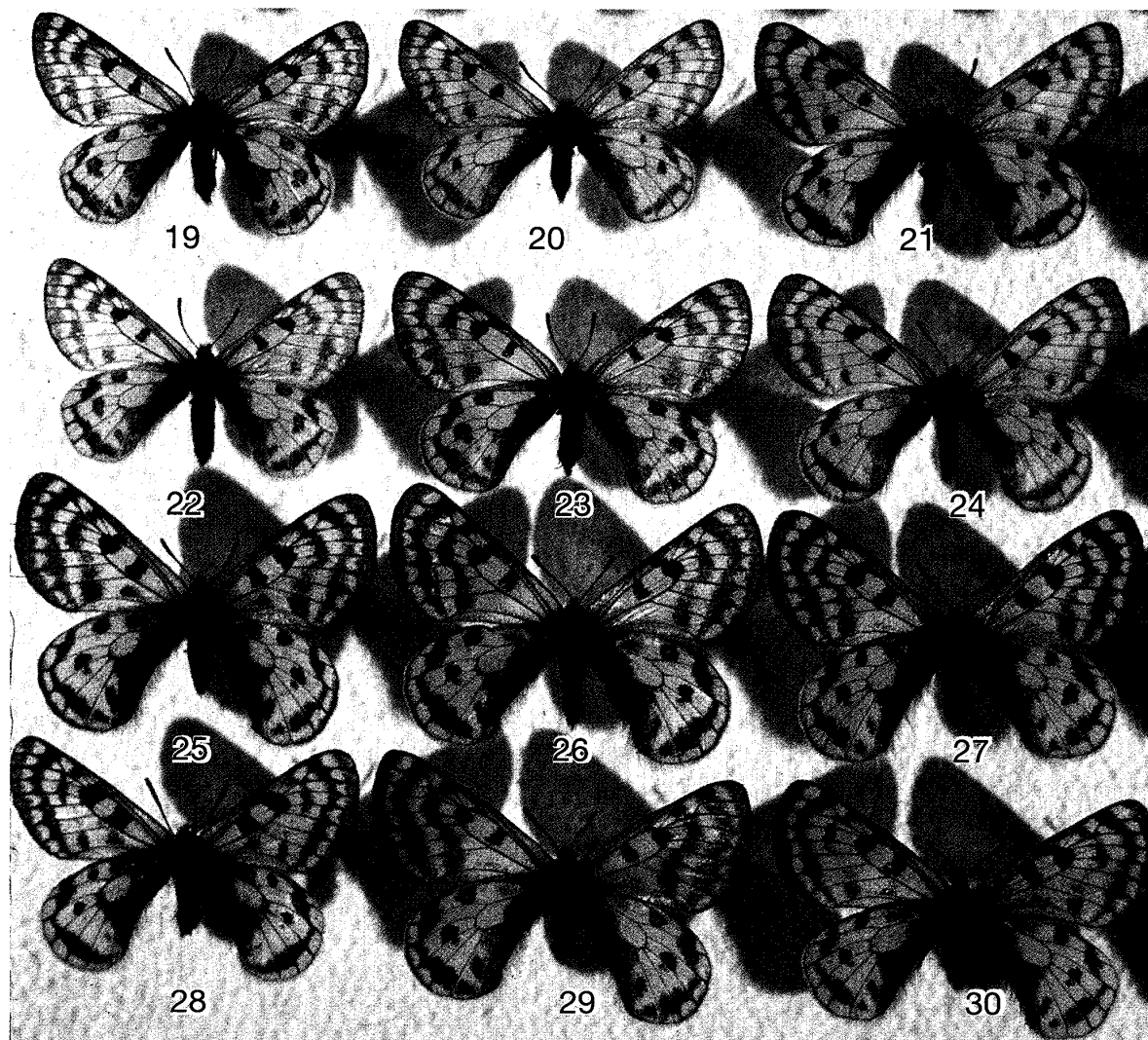
As a result, *Parnassius simonius* from Alai and Transalai mountains were regarded as the following four subspecies.

1. *Parnassius simonius simonius* Staudinger, 1889 (West Transalai mountains and West Alai mountains, Tengisbai pass)  
= *simonides* Austaut, 1912
2. *Parnassius simonius nigrificatus* Kreuzberg, 1986 (East Transalai mountains, 5 km west of Kysyl-Art pass and same mountains, Irkeshtam)
3. *Parnassius simonius taldicus* Gundorov, 1991 (East Alai mountains, Taldyk pass)  
= *shuvalorum* Kreuzberg & Pljustsh, 1992
4. *Parnassius simonius grayi* Avinoff, 1916 (West Alai mountains, Dugoba).

A synoptic table of the characters in four subspecies is as follows.

	<i>simonius</i>	<i>nigrificatus</i>	<i>taldicus</i>	<i>grayi</i>
forewing length	20–26 mm	21–25 mm	23–25 mm	26–28 mm
marginal band of the forewing			wider than that of the others	
hindwing postdiscal spot in Sc+R <sub>1</sub> -R <sub>5</sub>	large red	black or small red	black	black or large red
hindwing postdiscal spot in M <sub>1</sub> -M <sub>2</sub>	large red	black	black	black or small red
dark dusting in cell Cu <sub>2</sub> of the forewing	no or not often	stronger than that of <i>simonius</i> ; less than that of <i>taldicus</i>	strong	stronger than that of <i>simonius</i> ; less than that of <i>taldicus</i>
dark dusting in basal area in Sc+R <sub>1</sub> -R <sub>5</sub> of the hindwing	no or not often	no or not often	strong	less than that of <i>taldicus</i>





Figs 1-30. *Parnassius simonius* spp. 1-3. *P. s. nigrificatus*, male. 4-6. *Ditto*, female. 7. *P. s. taldicus*, holotype male. 8-9. *Ditto*, paratypes male. 10-12. *Ditto*, paratypes female. 13-15. *P. s. simonius*, male, Transalai Mts. 16-18. *Ditto*, female, Transalai Mts. 19-21. *Ditto*, male, Alai Mts. 22-24. *Ditto*, female, Alai Mts. 25-27. *P. s. grayi*, male. 28-30. *Ditto*, female.



Fig. 31. A map showing the distribution of four subspecies of *Parnassius simonius* Staudinger.  
1. Ssp. *grayi*. 2. Ssp. *simonius*. 3. Ssp. *taldicus*. 4. Ssp. *nigrificatus*.

black spot in discal cell of the forewing	often less than that of the others
postmedian band of the forewing	narrower than that of the others

### Flight period and habitat

Butterflies fly from the end of June to the end of July. All subspecies inhabit southern slopes at a height of 3,600–4,050 m. Larvae feed on *Lagotis decumbens* (Scrophulariaceae).

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### 摘 要

中央アジアのシモニウスウスバシロチョウの亜種群について (Sergei Gundorov)

シモニウスウスバシロチョウ *Parnassius simonius* Staudinger は、アライ山脈またはトランスアライ山脈から 4 亜種が知られている。1990–1992 年のタジキスタンおよびキルギジアでの 3 回の調査で、タルジク峠、テンギスバイ峠、キシル-アルト峠で、特にシモニウスウスバシロチョウを中心に多数の *Parnassius* を見ることができた。その後、シモニウスウスバシロチョウの多数の標本が友人によって西トランスアライのアラムクンゲイ峡谷と西アライのドゥゴバからも得られ、これらの標本から、テンギスバイ峠とアラムクンゲイ峡谷のものは亜種レベルで同じタクソンであること、ドゥゴバ産の標本と Avinoff (1916) の *grayi* の原記載図がよく一致することが分かった。Avinoff は *grayi* がテンギスバイ峠に近いアライ山脈の北西斜面に産すると述べているが、今回の標本は、テンギスバイ峠そのものには原名亜種 *simonius* が産し、*grayi* はこの峠の 70 km 西に分布することを示している。この地域の 4 亜種は、原名亜種 *simonius* が西トランスアライ山脈 (アラムクンゲイ峡谷) と西アライ山脈のテンギスバイ峠、亜種 *nigrificatus* が東トランスアライ山脈、亜種 *taldicus* が東アライ山脈、亜種 *grayi* が西アライ山脈のドゥゴバに分布することが認められた。

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